Method and Software Application for Computer Aided
Customer Independent Cash Collection using a State
Field in a Data Record

DESCRIPTION OF THE INVENTION

5   Field of the Invention

The technical field of this invention is in the area of
electronic data processing. More particularly, the
invention relates to methods, data structures, computer
program products and systems for automated processing

10   of invoices.

Background of the Invention

The processing of invoices by means of electronic data
records of the invoices is known from the state-of-the-
art. Such data records are used in enterprise business

15   software to store the financial data related with a
sale of a product, and to have these data available for
credit management and risk management purposes.
However, although the data are stored in the computer
system of the respective company (enterprise), it is

20   not in any case certain, whether the invoice has been
actually paid or not or whether a dispute has been
opened on the invoice or on the whole sale or on the
order process or on contract issues or other problems
that will prevent a payment of an invoice.

25   Consequently, if the management of the enterprise
analyses the financial situation on the basis of
uncertain data of invoices, the result may be
misleading and may show that financial situation of the
enterprise which is different from the real financial

30   situation. Further, the company may not be aware of the

need to collect the cash from active debts, and even if
the company is aware, it is not in any case clear, on
which part of the outstanding invoices the efforts of
cash collecting should be focused. This results

5   particularly in a technical problem, if a large number
of invoices, which have been sent to a plurality of
customers, have to be processed by the computer system.
From the technical point of view, frequent searching of
data bases with complex searching conditions have to be

10   made, which stress the system performance or, in other
words cause expenditures for computing power and
storage capacity.

Thus, there is a need for a method, software

15   application and/or data processing system providing a
more efficient solution of at least a part of the
problems described above; particularly it is desirable
to provide a software application having a mechanism
for more efficiently running the computer system and

20   enabling a better processing of invoices.

The above description is based on the knowledge of the
present inventors and not necessarily that known in the
art.

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SUMMARY OF THE INVENTION

In accordance with the invention, as embodied and
broadly described herein, methods and systems
consistent with the principles in this specification

30   provide a method for computerized processing of
invoices, which a company has presented to two or more
customers, comprising:

selecting from a plurality of invoices such invoices, which are due within a preselectable time or on a preselectable date and the balance of which is larger

5   than a preselectable first value, and assigning a first state to said selected invoices.

Applying the methods, e.g. by using the system, is insofar advantageous as the introduction of this state

10   concept greatly reduces the expenditures for search and querying the data bases and increases the system performance, particularly if huge amounts of invoices have to be screened.
Further, the collection of outstanding cash independent

15   of a specific customer is made easier. A company can focus its capacity of cash collection on such invoices, which are considered to be most important with respect to its turnover. The invention allows a company to have an overview over critical invoices duly before the

20   respective due dates, so that measures to ensure punctual payment can be taken in good time. Further, the management of the respective company can get an improved day sales outstanding, a better management of liquidity, an improved credit risk management through

25   more transparency, better customer profiling through company owned credit scores, better accounts receivable reporting and a better communication with customers.

Embodiments of the invention are further directed to a

30   computer system, a computer program, a computer readable medium and a carrier signal, each comprising program code or instructions for computerized processing of invoices, which a company has presented to two or more customers according to the above method

35   and its embodiments. The invention is further directed

to an electronic data structure having one or more data
fields fro one or more states.

Such computer program can be installed as one or more
5　programs or program modules on different hardware
systems (computers or computer systems), and run
separately and independently of each other, in their
entirety being capable of performing the inventive
method and its embodiments. The different systems may
10　be connected in the form of a network to communicate
with each other.

Additional objects and advantages of the various
embodiments of the invention will be set forth in part
15　in the description, or may be learned by practice of
the invention. The objects and advantages of the
embodiments of the invention will be realized and
attained by means of the elements and combinations
particularly pointed out in the appended claims.
20　Embodiments of the invention are disclosed in the
detailed description section and in the dependent
claims.
The various embodiments can include and/or exclude
different aspects, features and/or advantages, where
25　applicable. In addition, various embodiments can
combine one or more aspects or features of other
embodiments, where applicable.

It is understood that both the foregoing general
30　description and the following detailed description are
exemplary and explanatory only and are not restrictive
of the embodiments of the invention, as claimed. The
description of aspects, features and/or advantages of
particular embodiments should not be construed as
35　limiting other embodiments or the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in
and constitute a part of this disclosure, illustrate by
way of examples various embodiments and aspects of the
5   invention. In the drawings,

Fig. 1 is an exemplary diagram for illustrating the
implementation of the claimed method by means of a
computer system;
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Fig. 2 is an exemplary flow diagram of a first example
illustrating a method for processing invoices according
to the principles described in this disclosure;

15   Fig. 3 is an exemplary flow diagram of a second example
illustrating a method for processing invoices according
to the principles described in this disclosure;

Fig. 4 is an exemplary flow diagram of a third example
20   illustrating a method for processing invoices according
to the principles described in this disclosure;

Fig. 5 is an exemplary flow diagram of a fourth example
illustrating a method for processing invoices according
25   to the principles described in this disclosure;

Fig. 6 is an exemplary flow diagram of a fifth example
illustrating a method for processing invoices according
to the principles described in this disclosure;
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Fig. 7 is an exemplary block diagram for illustrating
an exemplary data structure for processing invoices
according to the principles described in this
disclosure.
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DESCRIPTION OF THE EMBODIMENTS

Within the concept of this specification, the terms used shall have their usual meaning in the context of the field of data processing, unless defined otherwise
5   herein.

A computer system broadly refers to any stand alone computer such as a PC or a laptop or a series of computers connected via a network, e.g. a network
10   within a company, or a series of computers connected via the internet.

Computer systems and programs may be closely related. As used herein, phrases, such as "the computer
15   provides" and "the program provides or performs specific actions", "a user performs a specific action" are used to express actions by a computer system that may be controlled by a program or to express that the program or program module may be designed to enable the
20   computer system to perform the specific action or to enable a user to perform the specific action by means of a computer system.

It should be understood that the term "presentment" as
25   used herein broadly refers to the specialized definition normally associated with commercial paper (i.e. the production on a negotiable instrument to a drawee) as well as to providing information via electronic means. For example, this electronic
30   presentment may be through the use of an Internet- or intranet website or via e-mail or SMS, e.g. by making a web site accessible to one or more persons. Electronic presentment may also take place by sending computer readable storage media, like disks, ZIP disks, magneto-

optical disks, CDs, R/W discs, DVD ROMs etc., e.g. via
standard mail.

Reference will now be made in detail to the principles

5   of the invention and its embodiments by an explanation
on the basis of a data processing process, examples of
which are illustrated in the accompanying drawings.

In electronic data processing, particularly in

10   accounting processes, the content of invoices may be
stored in electronic data records. Such data record may
be implemented as one or more lines of one or more
tables, each line having one or more fields. In object
orientated programming an electronic data record may be

15   implemented by an instance of a class. The class then
has at a plurality of variables. The class further has
a one or more functions, which are operable on the
instances (invoices). The fields or variables contain
typical invoice information such as name of customer,

20   addresses, product, price, account no., payment terms,
tax, contact person, invoice date, due date or person
responsible for changes in the document on the customer
side or responsible person for authorization.

25   The method as described in the summary section may be
performed by using such electronic data records. A set
of such records may be queried to extract such records,
which meet the condition according to which the
respective invoices are due within a preselectable time

30   or on a preselectable date and the balance of which
invoices is larger than a preselectable first value.
Subsequently, a first state is assigned to the thus
selected invoices. The assignment may be implemented
for example by means of a program module starting

35   automatically at preselectable times or time intervals
querying the invoice data and writing states into state

fields of the data records according to predefineable
conditions. An other example is that a list of such
preselected invoices may be presented to a user by
means of a graphical user interface an the user may
5   then select states to be assigned to the selected
invoices by means of selecting means presented to him
in the context of the user interface.

An example of a preferred implementation of assigning a
10   state to the invoices is that the electronic data
record may comprise a data field for the
characterization of the state of the invoice and that
characters are entered into that data field for the
characterization of the state. This field is
15   hereinafter referred to as state field. The state field
may be implemented as a string field with a length of 1
to 3, 4, 5, 6, 7, 8 or more characters, depending on
the number of possible states that shall be available.
Numerical type or Boolean type fields are possible as
20   well. Following of preferably at least three or four or
five or more states may be available for assignment:
paid, unpaid, balance > first value, balance < second
value, due, undue, for cash collection, special
attention, high priority, medium priority, low
25   priority, problem indicators on contract issues or on
invoice content and lay-out issues or on issues to be
handled by responsible managers or on escalated
matters, internal status, number of days outstanding,
payment date of document. These states are examples and
30   not intended to limit the scope of the invention.

The thus selected and/or thus assigned invoices may be
stored as a separate set or marked as selected.

35   In a further step it may be controlled, e.g. by the
computer system, whether payments have been received

for the selected invoices. Invoices, for which no
payments or only partial payments have been received,
are further extracted, e.g. by storing them separately
or marking. Both steps may also be performed in

5   inverted order or as a single query. Invoices having a
certain state, e.g. "for cash collection" may be
automatically presented to a collecting service. A
collecting service may be, for example, a case worker
of the company, and the presentation to him may be

10   performed as pointed out above, e.g. by sending an e-
mail including a file with the selected set of
invoices, or a link pointing to the storage location of
such a file or by sending a link to a web page, which
contains the selected invoices and which may comprise

15   further information like correspondence, notes, scanned
letters etc. The caseworker then can decide what
further actions are to the performed. He may, for
example, send an e-mail to the customer or call him
directly via telephone or the like. After presenting

20   the selected invoices to the collecting service, the
states of the invoices may be changed accordingly. It
should be noted that the selection is not based on
invoices for a specific customer, but it is made
customer independent over a plurality of invoices. This

25   allows a customer independent reporting, what results
in a better overview over the financial situation of
the company. As an example, invoices of high priority
may be presented 10 days before their due date, medium
priority 7 days before their due date and low priority

30   invoices on the due date. The mentioned values are
examples and depend on the intention of the respective
company. Instead of priority, the amount of the balance
may be used as well.

35   A first embodiment of the method is characterized in
that the method further comprises a step of selecting

from said plurality of invoices one or more invoices
and assigning a second state to said selected invoices.
The assignment of the second state may be implemented
by a second data field in the data record analogous to

5   that pointed out above. Alternatively the assignment of
two (or more) states may also be implemented by
defining a first number of characters of the string in
the state field as representing the first state and a
second number of characters subsequent to the first

10   number as representing a second state and so forth. For
example, if a string in the state field consists of 8
characters "ABCDEFGH", the first two characters (AB)
may define the first state, the following 3 characters
(CDE) may define a second state, the following two

15   characters (FG) may define a third state and the last
character (H) may define a fourth state. Any such
combination may be applied, and any meaning can be
assigned to any state. This is on the discretion of the
user of the method and the computer system.

20

A second embodiment of the methods comprises said first
and second state being represented by a first and
second set of characters entered into one data field of
a data record comprising data of the respective

25   invoice.

A third embodiment of the methods comprises the one or
more invoices being invoices of special importance.
Cases of special importance may be, for example, cases,

30   in which non standard business conditions have been
agreed upon in the underlying contract, e.g. special
payment conditions, special discount, conditions
deviating from the standard business conditions of the
company, etc.

35

A fourth embodiment of the methods is characterized in that said first and second states are states of high priority.

5 A fifth embodiment of the methods is characterized by selecting from said plurality of invoices such invoices, the balance of which is smaller than a preselectable second value, and larger than a preselectable third value and assigning a third state

10 to such selected invoices, the second value being smaller or equal than the first value and the third value being smaller than the second value.

In a sixth embodiment, the methods comprises that the

15 third state is a state of medium priority.

An seventh embodiment of the methods comprises selecting from said plurality of invoices such invoices, the balance of which is smaller than the

20 third value and assigning a fourth state to such selected invoices.

A further embodiment of the methods is characterized in that the fourth state is a state of low priority.

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In a further embodiment of the methods, the preselectable first value is such that a preselectable percentage of the outstanding active debts or turnover of the company is controlled.

30

A further embodiment of the methods comprises presenting the invoices of the first and/or second and/or third and/or fourth state to a cash collector.

35 A still further embodiment of the methods is characterized in that presenting the invoices having a

first or second state at the latest at a presetable
first period of time before the due date to the cash
collector.

5   A still further embodiment of the methods is
characterized by presenting the invoices having a third
state at the latest at a presetable second period of
time before the due date to the cash collector.

10   A still further embodiment of the methods is
characterized by presenting the invoices having the
fourth state at the latest at a presetable third period
of time before the due date to the cash collector.

15   A still further embodiment of the methods is
characterized by said cash collector controlling,
whether payments according to the invoices of the first
and/or second state have been made before or on or
after the due date, and in case of a non payment,
20   presenting such invoices to a collecting service.

A still further embodiment of the methods is
characterized in that the second period of time is
smaller than the first period of time and the third
25   period of time is smaller than the second period of
time.

A still further embodiment of the methods comprises
dunning the customers of the accompanying due invoices.
30

In a still further embodiment of the methods the
collection service is a collection division of the
company or an external collecting agency.

35   A still further embodiment of the methods is
characterized by checking whether a non-payment is

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reasoned, and in case no, presenting such invoice to an
external collecting agency.

A still further embodiment of the methods is
5 characterized by presenting the selected invoices to
the collecting service by means of a to-do-list.

A still further embodiment of the methods comprises
receiving a request for a state change of an invoice
10 from a customer and changing the state of the invoice
according to said request.

A still further embodiment of the methods comprises
presenting the request to an internal clearing division
15 before changing the state.

A still further embodiment of the methods is
characterized in that the method further comprises:
selecting from the selected invoices such invoices, the
20 due date of which has expired (step a), controlling,
whether a payment regarding the respective invoice has
been received before or on the time of selection (step
b) and presenting the selected invoices to a collecting
service (step c).
25

An embodiment of this method comprises instead or in
addition to step a): d) selecting from said plurality
of invoices such invoices, the balance of which is
smaller than a preselectable second value, and larger
30 than a preselectable third value, the second value
being smaller or equal than the first value and the
third value being smaller than the second value, before
continuing with step b).

35 A further embodiment comprises in step d): selecting
from the selected invoices such invoices, which are due

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within a preselectable time or on a preselectable date. This is useful, because it enables a company to efficiently check, whether its invoices are paid in due time. For example: the collecting service (case worker)

5   receives a list of invoices, which are due in two days. The case worker can now schedule his time, because he knows how many and what invoices he has to check on payment in two days.

10   A further embodiment is characterized by instead or in addition to step c): dunning the customers of the accompanying unselected due invoices. With this method, minor important invoices can be automatically processed, e.g. by automatically sending personalized

15   circular letters or mails.

A further embodiment is characterized by in step c): presenting the selected invoices via a to-do-list. Within the concept of this disclosure, the presentation

20   of a to-do-list may be accomplished by presenting the selected invoices in the form of a list on a display of the computer system of a caseworker. This can be done automatically or by sending a link to the file, which contains the list. The list may be provided with check-

25   boxes, alerts, or proposals for actions, each depending on the state of the respective invoice.

In a further embodiment, the methods are characterized in that the preselectable first value is such that a

30   preselectable first percentage of the outstanding active debts or turnover of the company is covered. The first percentage may range for example from 90 to 70 %, depending on the intention of the company. For example, 80 % may be a useful value in a variety of cases. The

35   actual number of the first value can, for example, be determined iteratively by successively increasing the

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first value from start value (zero is the trivial case)
and checking within each step, which percentage of the
turnover is covered, and taking that number as first
value, the accompanying percentage of which equals the
5   desired value of turnover.

A further embodiment of the methods is characterized in
that the preselectable first, second and third values
are such that a preselectable second percentage of the
10   outstanding active debts or turnover of the company is
covered. The second percentage may, for example, range
from 70 or 80 or 90 to 100 %, including all interim
values, depending on the intention of the company. The
selection according to this embodiment is insofar
15   advantageous as it helps ensuring that unselected
invoices represent only a comparatively small
percentage (100 - second percentage) of the company's
turnover.

20   Another embodiment comprises in step c): checking,
whether a partial- or non-payment is reasoned, and in
case no, presenting such unreasoned partial- or non-
paid invoice to a collecting agency. Within the concept
of this disclosure, the term "collecting agency"
25   broadly refers to collection divisions of the company
as well as to collecting agencies different from the
company. After presenting the invoices to the
collecting agency, the states of the respective
invoices may be changed accordingly.
30
A further embodiment of the inventive method comprises
in step c): presenting not due invoices at the latest
at a presetable first period of time before the due
date to the collecting service.
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A further embodiment of the inventive method comprises
in step d): presenting not due invoices at the latest
at a presetable second period of time before the due
date to the collecting service.

A still further embodiment of the inventive method
comprises instead or in addition to step a) and/or d):
selecting from said plurality of invoices such
invoices, the balance of which is smaller than the
third value.
A still further embodiment comprises in step d):
presenting the invoices at the latest at a presetable
third period of time before the due date to the
collecting service.
A still further embodiment comprises said collecting
service controlling, whether payments according to the
invoices have been made before or on or after the due
date, and, in case of a partial- or non payment,
presenting such invoices to a collecting agency.
A still further embodiment comprises checking whether a
partial- or non-payment is reasoned, and in case no,
presenting such invoice to an external collecting
agency.
A still further embodiment comprises presenting such
invoices to a clearing division prior to presenting to
the external collecting agency. This is useful, because
it enables the company to negotiate new payment
conditions with the customers before escalating the
case to the collecting agency. In case new payment
conditions have been agreed upon, the step of
presenting to the collecting agency can be omitted.

The preselectable first, second and third values,
times, dates and percentages can be stored in variables

or tables and can be made editable through a user, e.g.
a case worker of a collecting service.

A still further embodiment of the inventive method is
5   characterized in that the second period of time is
smaller than the first period of time and the third
period of time is smaller than the second period of
time. In a still further embodiment the collection
agency is a collection division of the company or an
10 external collecting agency.

A first embodiment of the electronic data record is
characterized in that said state field contains one or
more sets of characters for the characterization of one
15 or more states. An alternative embodiment is
characterized in that the data record comprises one or
more state fields for the one or more states. The above
mentioned states may be entered into the state field(s)
by entering a characteristic character or combination
20 of a few characters into the field(s), e.g. S1 to Sn
for a number of n states. To each condition mentioned
above, a state can be assigned and entered into the
state field. Likewise, a state can be assigned to
combinations of two or more conditions.
25

A further embodiment of the electronic data record is
characterized in that said state field(s) is (are)
linked to one or more tables, which contains a
description of a state. For example, the following
30 descriptions can be entered in that table: balance >=
X, X > balance >= Y, high priority, special case, high
priority AND balance >= X, due within U days, due on
"date", etc.

35 A further embodiment of the electronic data record is
characterized in that the state field is directly or

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indirectly linked to a table, which contains one or
more instructions, which depend on said state and which
are automatically executable by a computer system, for
example instructions for automatically dunning

5   customers.

A further embodiment of the electronic data record is
characterized in that said state field is directly or
indirectly linked to a table, which contains assignment

10   of a state to an event, which might occur during the
processing of the invoice. The following events may be
typically contained: Invoice blocked for payment,
because of invoice lay-out not complete or incomplete
invoice reference or quality or quantity issues on

15   outstanding documents to be solved by responsible
person within company. These events are examples and
are not intended to limit the scope of this invention.
By means of a table one or more proposals for a change
of the state may be assigned to a state.

20

In a further embodiment, the electronic data record
comprises a field for comments. This field may be
implemented for example as a string field of a length
of up to 128 characters or more.

25

A further embodiment of the electronic data record is
characterized in that the electronic data record is at
least partially accessible via the internet and wherein
the content of the state field or a data field for

30   comments is editable via the internet. In order to
achieve this, the respective data fields must be
deblocked for read/write access in the computer system
in which the electronic data record is processed. Other
selected fields of the electronic data record, the

35   content of which fields may be of interest for a

potential internet user, may be deblocked for read
access only.

A further embodiment of the electronic data record is
5   characterized in that the state field is linked to a
table, which contains one or more state dependent
proposals for changing the state. For example, if the
state is that an invoice has to be paid in a few days,
a proposed state after the due date is that the state
10   may be changed in "not paid". Or if certain situation
has been clarified by a phone call, the sate it may
have the state "will be paid with delay".

A further embodiment of the method as described in the
15   summary section and using the data structure described
above is characterized in that the method further
comprises a step of assigning a state, which may be
entered by a user, to said state field. This may be
implemented by an independent program, which may
20   collect all changes of states in a predefineable time
interval and which writes the changes periodically into
the respective state fields.

A further embodiment of this method is characterized in
25   that the method further comprises selecting or sorting
or evaluating or analyzing the electronic invoices
according to the state.
By using this method and general known data base query
tools, a user of the method - e.g. a collecting service
30   - may get lists of all invoices, which fulfill
predefineable conditions with respect to the state
field as pointed out above.

A further embodiment comprises calling a state
35   dependent work flow.

By using this method, a workflow, which is designed to solve a specific problem, may be automatically initiated. For example, a dispute process can be initiated if a due invoice is not paid without a

5   reasoned statement. Then a mail may be automatically sent to collecting agency in order to solve the problem. Further, a deadline can be issued on an outstanding problem. After experiment date the system may automatically sent a reminder to the responsible

10   persons to take action.
Further, the to-do-list can be initiated for cash collectors on outstanding items, by sending a mail to responsible contact persons for the customers.

15   A still further embodiment is the disclosed method(s) or data structures or computer system(s) for use in or for an enterprise resource planning software.
An enterprise resource planning software herein broadly refers to any software or software package for

20   supporting business processes of enterprises, including but not limited to accounting, administration, management, or production processes.

Processors suitable for the execution of a computer

25   program for performing the above methods include, by way of example, both general and special purpose microprocessors, and any one or more processors of any kind of digital computer. Generally, a processor will receive instructions and data from a read-only memory

30   or a random access memory or both. The essential elements of a computer are a processor for executing instructions and one or more memory devices for storing instructions and data. Generally, a computer will also include, or be operatively coupled to receive data from

35   or transfer data to, or both, one or more mass storage devices (storage means) for storing data, e.g.,

magnetic, magneto-optical disks, or optical disks.
Information carriers suitable for embodying computer
program instructions and data include all forms of
non-volatile memory, including by way of example
5 semiconductor memory devices, such as EPROM, EEPROM,
and flash memory devices; magnetic disks such as
internal hard disks and removable disks;
magneto-optical disks; and CD-ROM and DVD-ROM disks.
The processor and the memory can be supplemented by, or
10 incorporated in, ASICs (application-specific integrated
circuits).

To provide for interaction with a user, the invention
can be implemented on a computer system having a
15 display device such as a CRT (cathode ray tube) or LCD
(liquid crystal display) monitor for displaying
information to the user and a keyboard and a pointing
device such as a mouse or a trackball by which the user
can provide input to the computer. Other kinds of
20 devices can be used to provide for interaction with a
user as well; for example, feedback provided to the
user can be any form of sensory feedback, such as
visual feedback, auditory feedback, or haptic feedback;
and input from the user can be received in any form,
25 including acoustic, speech, or haptic input.

The invention is now described in more detail by way of
reference to the drawings.

30 Fig. 1 shows one example of an implementation of an
embodiment of the invention: A computer system with
program modules for processing the inventive electronic
data record and for performing the inventive method.
What is shown is a computer system 101 comprising a
35 computer 102 having a CPU 105, a memory 112 for storing
an operating system, data and programs. In memory 112 a

software application 111 is stored for being processed
by CPU 105. Software application 111 comprises program
modules 106, 110 for carrying out the processing of the
inventive electronic data record and the processing

5   according to the inventive method. The inventive
electronic data records are implemented in a table 109
comprising columns for typical invoice data and two
columns, "state1" and "state2" for two types of states
of the invoice. State1 represents a general type,

10   state2 a priority type. Table 109 is stored in computer
memory 112 and on a non volatile data storage device
107. Computer System 101 further comprises input means
103, output means 104 for interaction with a user, e.g.
for starting the program modules and/or for data input,

15   and general input/output means 108, including a net
connection 114, for sending and receiving data. A
plurality of computer systems 101 can be connected via
the net connection 114 in the form of a network 113. In
this case the network computers 113 can be used as

20   further input/output means, including the use as
further storage locations. Computer system 101 further
comprises storage means 107.

In case the ERP software 111 carries out the claimed
25   method, program modules 106, 110 are processed by CPU
105. The processing comprises module 106 querying table
109 for invoices, which are due within U days and the
balance of which is equal or greater than X. Module 106
enters a state, e.g. S1U, into the state field of the

30   respective invoice(s), inv. 003 in the example. Module
106 further queries table 109 for invoices, which meet
further predefineable conditions, and enters
corresponding states into the state fields. Examples
are: state S1 for "balance >= X" and S2 for "X >

35   balance >= Y". Module 106 further assigns a further
state, a priority type state "MP" (medium priority) to

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invoice 003. This may be performed by presenting a
corresponding input request to a user, e.g. by means of
a graphical user interface. The user then decides what
priority the corresponding invoice shall have. The user
5   enters the state (e.g. by clicking a corresponding box)
and module 106 writes the state into the state field.
Default values may be set for the states when creating
the data record for an invoice. Priority states may
also be set automatically, e.g. by automatically
10   assigning a low priority state to all invoices, the
balance of which is smaller than a preselectable value,
or a high priority state to all invoices, the balance
of which is greater or equal than a preselectable first
value, or to which special contractual conditions
15   apply. Module 106 may also query table 109 for such
invoices, which are due on a preselectable date or
within a preselectable date and to which a first state
is assigned, and assign a second state to such selected
invoices. For example, module 106 queries table 109 for
20   invoices, which are due within V days, checks, whether
the state1 field for that invoices is other than
default an assigns a second state to such invoices as
pointed out above. Alternatively this may also be
implemented by checking, whether a state "V" (or "U")
25   is contained in the state1 field, and by assigning a
second state to such invoices as pointed out above.
E.g. all invoices, which are due in V = 6 months, shall
"now" (at the time of selection) have the state "low
priority".
30

Subsequently or parallel to that procedure, module 110
queries table 109 for medium priority invoices having
the state S2U, extracts preselectable data from the
respective invoices and presents the extracted date to
35   a user in the form of a to-do-list 115 on a display
104. A user can evaluate the list and can decide

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whether, and in case yes, what actions should be
performed next. In order to support this, the to-do-
list may comprise check boxes or buttons by means of
which further actions can be initiated. For example a
5   button assigned to each invoice may cause – if it is
applied – that a list of possible actions is presented
to the user for selection. E.g. that an e-mail with a
predefineable content is sent to the customer of the
respective invoice. Presenting the to-do-list can also
10   be performed on other network computers 113.

Fig. 2 shows an exemplary flow diagram in order to
illustrate principles of the claimed method,
particularly an example of a process 106 of Fig. 1.
15   After a start step 201 a list 203 of invoices is
queried in a step 202 according to a set of selection
conditions 204. In the example, the set consists of
only one condition: The balance of an invoice has to be
greater than a value V1. For the thus selected invoices
20   it is checked in an optional step 205 whether a full
payment has been received. In case yes, the respective
invoice is withdrawn from the list of selected invoices
in step 206. In a further step, the state of the
respective invoice may be changed to "paid". In a step
25   207, a first state is assigned to invoices, for which
none or only a partial payment has been received.
Invoices having a preselectable first state, are then
presented as a to-do-list 209 in a step 208 to a
collecting service, e.g. a user in a collecting
30   department of the company in step 207. The exemplary
process then ends in step 210.

Fig. 3 shows an exemplary flow diagram in order to
illustrate principles of the claimed method,
35   particularly an example of a process 106 of Fig. 1.
After a start step 301 a list 303 of invoices is

queried in a step 302 according to a set of selection
conditions 304. In the example, the set consists of
only one condition: A state of an invoice has to
contain "U", what means: the invoice is due within U

5   days. For the thus selected invoices it is checked in
an optional step 305 whether a full payment has been
received. In case yes, the respective invoice is
withdrawn from the list of selected invoices in step
306. In a further step, the state of the respective

10 invoice may be changed to "paid". In step2 307, 309,
311, a second state is assigned to invoices, for which
none or only a partial payment has been received. For
this purpose, a list 308 showing the selected invoices
is presented to the user. The list 308 comprises

15 information on the invoice and to each invoice means
for selecting a state to the invoice. In the example,
the user can chose whether the invoices 003 and xyz
shall have the state "state2a" or "state2b". The user
clicks the corresponding boxes, while the process is

20 waiting in step 309 for the decision. When the user has
finished the selection, the process writes the selected
states into the state fields of the data records instep
311. The exemplary process then ends in step 312.

25 Fig. 4 shows an exemplary flow diagram in order to
illustrate principles of the claimed method,
particularly an example of a process 109 of Fig. 1.
After a start step 401 a list 403 of invoices is
queried in a step 402 according to a set of selection

30 conditions 404. In the example, the set consists of two
conditions: The first state of an invoice has to be
"S1U" and the second state "MP". For the thus selected
invoices it is checked in an optional step 405 whether
a full payment has been received. In case yes, the

35 respective invoice is withdrawn from the list of
selected invoices in step 406. In a further step, the

state of the respective invoice may be changed to
"paid". In a step 407, invoices having the
preselectable first and second state, are then
presented as a to-do-list 408 to a collecting service,
5   e.g. a user in a collecting department of the company.
The exemplary process then ends in step 409. The user
in the collecting department may then initiate actions
with regard to each specific invoice, e.g. call the
customer by phone or send an email. In case the
10   reaction of the customer on the action satisfies the
expectations of the user, this can be entered into the
data record by a corresponding state. If no or a
dissatisfactory reaction is received from the customer
within a preselectable time, a further to-do-list may
15   be presented to the collecting division. The further
to-do-list may comprise a list of possible actions,
depending on the type of reaction the customer
provided, for selection. For example, an invoice may be
passed to a credit control area in case financial
20   challenges like bankruptcy of the customer occur, it
may be re-routed to a front office, if commercial
challenges like dissatisfaction of the customer with
delivered goods occurs, it may be re-routed to a back
office if invoicing challenges like wrong address or
25   delivery challenges like incomplete delivery occur.

Fig. 5 shows a further exemplary flow diagram in order
to further illustrate principles of the claimed method,
particularly an example of a process 109 of Fig. 1.
30   After a start step 501 a list 503 of invoices is
queried in a step 502 according to a set of selection
conditions 504. In the example, the set consists of
three conditions: the first state is S3 (balance of an
invoice has to be smaller than a value Y (see Fig. 7),
35   the invoice has to be due and the second state is low
priority. For the thus selected invoices it is checked

in an optional step 505 whether a full payment has been received. In case yes, the respective invoice is withdrawn from the list of selected invoices. In a further step, the state of the respective invoice may

5   be changed to "paid". The customers accompanying the invoices, for which none or only a partial payment has been received, are then automatically dunned in step 507, e.g. by automatically sending dunning letters or dunning e-mails. The exemplary process ends in step

10   508.

Alternatively, the unsettled invoices may be presented as a to-do-list like 209 in Fig. 2 to a collecting service, e.g. a user in a collecting department of the company in order to confirm the dunning by the

15   collecting service before the dunning letter or e-mail is sent out. If no reaction is received from the dunned customer within a preselectable time, the respective invoices may be presented to a collecting agency. In case a reaction is received from the customer, a

20   further to-do-list may be presented to the collecting division. The further to-do-list may comprise a list of possible actions, depending on the type of reaction the customer provided, for selection. For example, an invoice may be passed to a credit control area in case

25   financial challenges like bankruptcy of the customer occur, it may be re-routed to a front office, if commercial challenges like dissatisfaction of the customer with delivered goods occurs, it may be re-routed to a back office if invoicing challenges like

30   wrong address or delivery challenges like incomplete delivery occur.

Fig. 6 shows a further exemplary flow diagram in order

35   to further illustrate principles of the claimed method, particularly an example of a process 109 of Fig. 1.

After initiating the process in a start step 601 a list
603 of invoices is queried in a step 602 according to a
set of selection conditions 604. In the example, the
set consists of two conditions: the first state field

5   has to contain S1 (balance of an invoice has to be
greater than a value V1, see Fig. 7) and the second
state has to be a high priority. For the thus selected
invoices it is checked in an optional step 605 whether
a full payment has been received. In case yes, the

10   respective invoice is withdrawn from the list of
selected invoices in step 606. In a further step, the
state of the respective invoice may be changed to
"paid". The invoices, for which none or only a partial
payment has been received, are then presented as a to-

15   do-list 608 to a collecting service, e.g. a user in a
collecting department of the company in step 607. The
user then can decide what action has to taken next,
e.g. by selecting one of a list of proposed actions,
which is incorporated into the to-do-list 608. The

20   process waits for that decision in step 609. The
selected action is then automatically carried out in
step 610. An example for such an action is: presenting
the invoice to an in-house clearing division for
deciding whether presenting it to an external

25   collecting agency or not. The exemplary process then
ends in step 611.

The optional steps for checking whether payments have
been received, can also be performed before starting

30   the respective processes, e.g. when creating the
invoice lists 203 to 603.

Fig. 5 shows an example of a data structure of an

35   invoice for illustration. The data structure is
implemented as a table 701 having a plurality of

columns. According to the invention, a column 707 for
the first and second state of the invoice is contained.
The fields of the column 707 contain strings of a
length of at least four characters. The first two
5   characters are defined to represent the first state,
second two characters represent the second state.
Further groups of characters may be used to define
further states, depending on the length of the field.
Depending on the number of states, one character per
10   state may be sufficient. Alternatively n columns for n
states can be used as well. Combinations of both
alternatives are also possible. The individual data
records of the invoices are implemented as individual
lines of table 701. The state column 707 of table 701
15   comprises one state field for each invoice. In a table
702 a description is assigned to a state. By means of
table 703 one or more events 1 to n are assigned to a
state. By means of table 704 one or more proposals 1 to
n are assigned to a state. By means of table 505 one or
20   more events 1 to n are assigned to a state. Tables 702
to 705 are linked to table 701 by the state column. In
a table 706, values of variables may be stored. The
conditions, which are applied when querying the list of
invoices, may be stored in a table as well.
25

Modifications and adaptations of the present invention
will be apparent to those skilled in the art from
consideration of the specification and practice of the
invention disclosed herein. The foregoing description
30   of an implementation of the invention has been
presented for purposes of illustration and description.
It is not exhaustive and does not limit the invention
to the precise form disclosed. Modifications and
variations are possible in light of the above teachings
35   or may be acquired from the practicing of the
invention. For example, the described implementation

includes software, but systems and methods consistent with the present invention may be implemented as a combination of hardware and software or in hardware alone. Additionally, although aspects of the present

5   invention are described for being stored in memory, one skilled in the art will appreciate that these aspects can also be stored on other types of computer-readable media, such as secondary storage devices, for example, hard disks, floppy disks, or CD-ROM; the Internet or

10   other propagation medium; or other forms of RAM or ROM.

Computer programs based on the written description and flow charts of this invention are within the skill of an experienced developer. The various programs or

15   program modules can be created using any of the techniques known to one skilled in the art or can be designed in connection with existing software. For example, programs or program modules can be designed in or by means of Java, C++, HTML, XML, or HTML with

20   included Java applets or in SAP R/3 or ABAP. One or more of such modules can be integrated in existing e-mail or browser software.

While illustrative embodiments of the invention have

25   been described herein, the present invention is not limited to the various preferred embodiments described herein, but includes any and all embodiments having equivalent elements, modifications, omissions, combinations (e.g., of aspects across various

30   embodiments), adaptations and/or alterations as would be appreciated by those in the art based on the present disclosure. The limitations in the claims are to be interpreted broadly based on the language employed in the claims and not limited to examples described in the

35   present specification or during the prosecution of the

application, which examples are to be construed as non-exclusive. For example, in the present disclosure, the term "preferably" is non-exclusive and means "preferably, but not limited to." Means-plus-function

5   or step-plus-function limitations will only be employed where for a specific claim limitation all of the following conditions are present in that limitation: a) "means for" or "step for" is expressly recited; b) a corresponding function is expressly recited; and c)

10 structure, material or acts that support that structure are not recited.

Other embodiments of the invention will be apparent to those skilled in the art from consideration of the

15 specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.